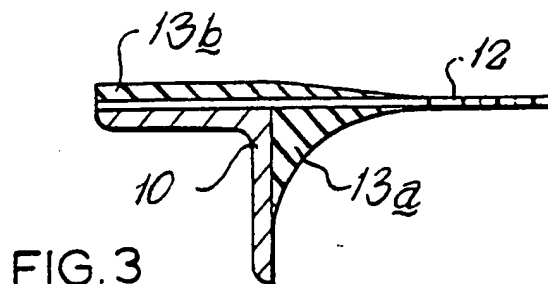


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(54) Sieves

(57) A sieve comprises a rigid frame (10) which supports a sheet (12) of mesh material, a fillet (13a and/or 13b) of elastic material being bonded to the sheet inwardly of its junction with the frame whereby bending in the sheet arising from flexing of the sheet at said junction is reduced or eliminated, thus reducing fatigue and increasing the sieve life.



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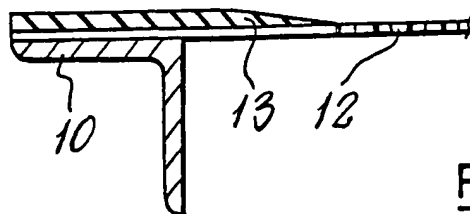


FIG. 1

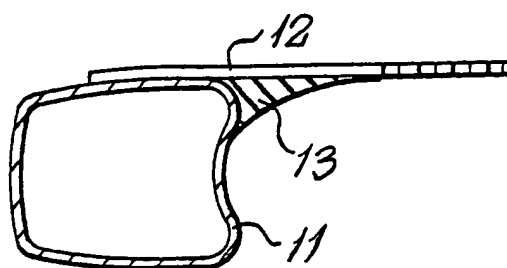


FIG. 4

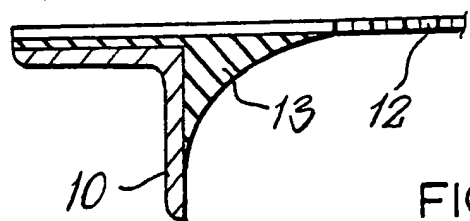


FIG. 2

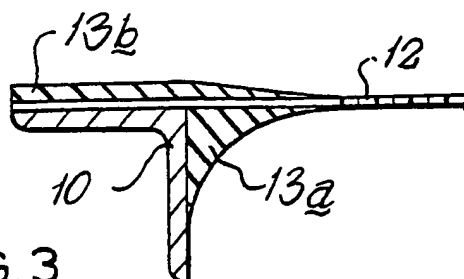


FIG. 3

SPECIFICATION

Sieve screens

5 This invention concerns a sieve screen of the kind (hereinafter termed "of the kind referred to") comprising a sheet of screen mesh material secured to and surrounded by a rigid frame.

Sieve screens of the kind referred to are frequently
10 vibrated when in use and a common problem is failure of the screen mesh through fatigue at its junction with the frame. The problem is particularly prevalent when the screen mesh is constructed from stainless steel wires but also occurs with screening
15 meshes constructed from other materials such as synthetic monofilament yarns, for example.

Sieve screens of the kind referred to are widely used throughout many industries. One application of particular interest, however, is the screening of
20 the drilling mud used on oil rigs. In this application a typical sieve screen may have a length of about 1.32 m and a width of about 1.14 m and comprise a stainless steel screen mesh of suitable count and have a working life of as little as half an hour and
25 seldom more than two weeks or so.

It is an object of the present invention to provide a sieve screen of improved durability.

According to the present invention, there is provided a sieve screen of the kind referred to, characterised in that a fillet of elastic material extends
30 inwardly from the edge of the aperture of the frame and is bonded to the sheet inwardly of the junction between the sheet and the frame whereby bending in the sheet at its junction with the frame, arising
35 from flexing of the sheet, is reduced.

The invention will be further apparent from the following description with reference to the several Figures of the accompanying drawing, which show, by way of example only, a number of embodiments
40 of sieve screen constructed in accordance with the invention.

Each of the Figures shows a cross-section through the junction of the sheet of screen mesh material with the rigid frame.

Each of the sieve screens comprises a rectangular (or other shaped) frame of rigid construction and formed, for example, from members 10 of L-section (Figures 1 to 3) or from members 11 of tubular section (Figure 4) and a sheet 12 of screen mesh
50 material secured to and surrounded by the frame such that the sheet 12 is in a tensioned condition.

In accordance with the invention a fillet 13 of elastic material extends inwardly from the edge of the aperture of the frame and is bonded to the sheet
55 12 inwardly of the junction between the sheet 12 and the frame.

Generally the thickness of the fillet 13 will decrease gradually from the edge of the frame to its inner edge which of course defines the outer edge of
60 the effective screen area.

The fillet 13 may be of any elastic material. One possibility is the use of an elastomeric material which can be moulded onto the frame and sheet 12 thus to form the necessary bonds without the use of
65 any adhesive or other securing means. Another

possibility is the use of a suitable steel of sufficiently thin section to give the required elasticity. In all cases, the material, cross-sectional shape and dimensions of the fillet 13 should be selected so that
70 bending in the sheet 12 at its junction with the rigid frame arising from flexing of the sheet during normal usage is at least substantially reduced if not completely eliminated. Ideally the mesh edge of the fillet 13 provides no additional support to the mesh
75 and the frame edge of the fillet 13 provides a support equal to that of the frame.

A single fillet 13 may be provided and this may be on the face of the sheet 12 adjacent the frame (Figures 2 and 4) or on the opposite face (Figure 1).

80 Two fillets may be provided (Figure 3), one 13a on the face of the sheet 12 adjacent the frame and the other 13b on the opposite face.

The fillet 13 when on the face of the sheet 12 remote from the frame extends with the sheet 12
85 over the frame beyond the edge of the aperture (Figures 1 and 3). When on the face of the sheet adjacent the frame it may terminate at the inner edge of the frame (Figure 4) or extend over the frame (Figure 2).

90 The fillet may be in the form of a thin strip of generally rectangular cross-section (Figure 1) or of pronounced generally triangular cross-section (Figure 4) or of other suitable shape, as in Figure 2 for example.

95 It will be appreciated that it is not intended to limit the invention to the above examples only, many variations, such as might readily occur to one skilled in the art, being possible without departing from the scope thereof as defined by the appended claims.

100 By "rigid frame" throughout the specification and claims, we means not only rigid frames of the more conventional kind but also frames having rigid side frame members, which members are not, however, rigidly interconnected.

CLAIMS

1. A sieve screen comprising a sheet of screen mesh material secured to and surrounded by a rigid frame, characterised in that a fillet of elastic material extends inwardly from the edge of the aperture of the frame and is bonded to the sheet inwardly of the junction between the sheet and the frame, whereby
110 bending in the sheet at its junction with the frame arising from flexing of the sheet is reduced.

2. A sieve screen according to claim 1 wherein bending in the sheet at its junction with the frame is eliminated.

3. A sieve screen according to claim 1 or claim 2 wherein said fillet is disposed on the face of the sheet adjacent the frame.

4. A sieve screen according to claim 1 or claim 2 wherein said fillet is disposed on the face of the sheet remote from the frame and extends with the sheet over the frame beyond the edge of the aperture.

5. A sieve screen according to claim 3 wherein the fillet terminates at the inner edge of the frame.

6. A sieve screen according to claim 3 wherein the fillet extends with the sheet over the frame
130

beyond the edge of the aperture.

7. A sieve screen according to claim 1 or claim 2 wherein there are two fillets, one on each face of the sheet.

- 5 8. A sieve screen according to any preceding claim wherein said fillet gradually reduces in thickness from the edge of the aperture of the frame to its inner edge.

- 10 9. A sieve screen according to any preceding claim wherein said fillet is of an elastomeric material.

10. A sieve screen according to claim 9 wherein the fillet is moulded onto the sheet, thus to form the required bond.

- 15 11. A sieve screen substantially as described herein with reference to and as illustrated by any one of the Figures of the accompanying drawing.